

What is claimed is:

1. An apparatus for assembling a reconstruction system that includes first and second anchor assemblies, wherein the first anchor assembly includes a first tissue presentation surface, and the second anchor assembly includes a tissue fixation surface and a second tissue presentation surface, the apparatus comprising:
  - a base plate;
  - a first mounting block mounted to the base plate and having a first reference surface against which the first anchor assembly is mountable for positioning the first tissue presentation surface at a first location over the base plate;
  - 10 a second mounting block mounted to the base plate and having a second reference surface against which the second anchor assembly is mountable for positioning the second tissue presentation surface at a second location over the base plate, wherein the second reference surface is adjustably moveable relative to the first reference surface; and
  - a tension apparatus mounted to the base plate for applying a tension to a graft
  - 15 connected to the first anchor assembly mounted to the first mounting block, and for positioning the graft along the tissue fixation surface and the first and second tissue presentation surfaces under the tension.
2. The apparatus of claim 1, wherein the assembling apparatus includes measurement indicia, and wherein an alignment between one of the first and second mounting blocks and the indicia indicates a first separation distance.
- 20 3. The apparatus of claim 2, wherein the first separation distance corresponds to a distance between the first mounting block or the first anchor assembly mounted thereto, and the second location or the second anchor assembly mounted thereto.
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4. The apparatus of claim 2, further comprising:

a measurement bar that is fixed to one of the first and second mounting blocks and that slides relative to the other one of the first and second mounting blocks as the second reference surface is adjustably moved relative to the first reference surface, wherein the measurement bar includes the measurement indicia.

5. The apparatus of claim 4, wherein the second mounting block is slidably attached to the base plate for the selective movement of the second reference surface relative to the first reference surface.

6. The apparatus of claim 2, further comprising:

a support block mounted over the base plate and having a third reference surface that is adjustably movable relative to the first reference surface for abutting an end of the second tissue presentation surface, wherein an alignment between the support block and the indicia indicates a separation distance between the third reference surface and the second reference surface.

7. The apparatus of claim 2, further comprising:

a measurement bar that is fixed to one of the first and second mounting blocks and that slides relative to the other one of the first and second mounting blocks as the second reference surface is selectively moved relative to the first reference surface, wherein the measurement bar includes the measurement indicia;

a support block slidably mounted to the measurement bar and having a third reference surface for abutting an end of the second tissue presentation surface, wherein an alignment between the support block and the indicia indicates a separation distance between the third reference surface and the second reference surface.

8. The apparatus of claim 6, wherein:  
the first mounting block includes a slot formed therein adjacent the first reference surface for receiving the first anchor assembly;  
5 the second mounting block includes a slot formed therein adjacent the second reference surface for receiving the second anchor assembly; and  
the support block includes a slot formed therein adjacent the third reference surface for receiving the second anchor assembly.
- 10 9. The apparatus of claim 7, wherein:  
the measurement bar is fixed to the second mounting block and slides relative to the first mounting block;  
the second mounting block is slidably mounted to the base plate;  
the apparatus further comprising:  
15 at least one locking knob for selectively locking the support block to the measurement bar, and  
at least one locking knob for selectively locking the second mounting block to the base plate.
- 20 10. The apparatus of claim 7, wherein the first mounting block includes a reference bar extending therefrom having an end that is disposed adjacent the indicia and that is aligned with an end of the first tissue presentation surface of the first anchor assembly mounted to the first mounting block, and wherein an alignment between the reference bar end and the indicia indicates a separation distance between the end of the first tissue  
25 presentation surface of the first anchor assembly mounted against the first reference surface and the second reference surface.

11. The apparatus of claim 1, wherein the tension apparatus includes a pair of tension devices that are slidably mounted to the base plate, and wherein the tension applied to the graft is adjustable by sliding the tension devices relative to the base plate.

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12. The apparatus of claim 11, wherein each of the tension devices includes at least one adjustment knob for adjusting the tension applied to the graft.

13. The apparatus of claim 11, wherein each of the tension devices includes a pin  
10 for indicating a value of the tension applied to the graft.

14. An apparatus for mounting a graft between first and second anchor assemblies of a reconstruction system, comprising:

a base plate;

15 a first mounting block mounted to the base plate and having a first reference surface;

a second mounting block mounted to the base plate and having a second reference surface that is adjustably moveable relative to the first reference surface;

a measurement bar that is fixed to one of the first and second mounting blocks and that slides relative to the other one of the first and second mounting blocks as the second  
20 reference surface is selectively moved relative to the first reference surface, wherein the measurement bar includes measurement indicia such that an alignment between one of the first and second mounting blocks and the indicia indicates a first separation distance relating to a separation distance between the first and second reference surfaces; and

a tension apparatus mounted to the base plate for applying a tension to a graft  
25 connected to a first anchor assembly mounted against the first reference surface, and for

positioning the graft to extend adjacent to and past the second mounting block under the tension.

15. The apparatus of claim 14, wherein the second mounting block is slidably  
5 attached to the base plate for the selective moveability of the second reference surface relative to the first reference surface.

16. The apparatus of claim 14, further comprising:  
a support block mounted over the base plate and having a third reference surface that  
10 is movable relative to the first reference surface, wherein an alignment between the support block and the indicia indicates a separation distance between the third reference surface and the second reference surface.

17. The apparatus of claim 16, wherein:  
15 the first mounting block includes a slot formed therein adjacent the first reference surface;  
the second mounting block includes a slot formed therein adjacent the second reference surface; and  
the support block includes a slot formed therein adjacent the third reference surface.

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18. The apparatus of claim 16, wherein:  
the measurement bar is fixed to the second mounting block and slides relative to the first mounting block;  
the second mounting block is slidably mounted to the base plate;  
25 the apparatus further comprising:

at least one locking knob for selectively locking the support block to the measurement bar, and

at least one locking knob for selectively locking the second mounting block to the base plate.

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19. The apparatus of claim 14, wherein the first mounting block includes a reference bar extending therefrom having an end that is disposed adjacent the indicia, and wherein an alignment between the reference bar end and the indicia indicates a separation distance between the reference bar end and the second reference surface.

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20. The apparatus of claim 14, wherein the tension apparatus includes a pair of tension devices that are slidably mounted to the base plate, and wherein the tension applied to the graft is adjustable by sliding the tension devices relative to the base plate.

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21. The apparatus of claim 20, wherein each of the tension devices includes at least one adjustment knob for adjusting the tension applied to the graft.

22. The apparatus of claim 20, wherein each of the tension devices includes a pin for indicating a value of the tension applied to the graft.

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23. An apparatus for assembling a reconstruction system that includes first and second anchor assemblies, wherein the first anchor assembly includes an opening through which a graft may be looped and a first tissue presentation surface adjacent the opening, and the second anchor assembly includes a bone anchor, a shaft extending from the bone anchor, and a second tissue presentation surface adjustably connected to the shaft, the apparatus comprising:

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a base plate;

a first mounting block mounted to the base plate and having a first reference surface against which the first anchor assembly is mountable for positioning the first tissue presentation surface at a first location over the base plate;

5        a second mounting block slidably mounted to the base plate and having a second reference surface against which the bone anchor is mountable for positioning the shaft at varying locations over the base plate, wherein the second reference surface is selectively moveable relative to the first location by sliding the second mounting plate relative to the base plate;

10       a measurement bar extending from the second mounting block that slides past the first mounting block as the second reference surface is selectively moved relative to the first location, wherein the measurement bar includes measurement indicia such that an alignment between an end of the first tissue presentation surface and the indicia indicates a separation distance between the first tissue presentation surface end and the second reference surface;

15       a support block slidably mounted to the measurement bar and having a third reference surface for abutting an end of the second tissue presentation surface, wherein an alignment between the support block and the indicia indicates a separation distance between the third reference surface and the second reference surface; and

20       a tension apparatus mounted to the base plate for applying a tension to a graft looped through the first anchor assembly mounted to the first mounting block, and for positioning the graft along the first and second tissue presentation surfaces under the tension.

24.     The apparatus of claim 23, wherein:

25       the first mounting block includes a slot formed therein adjacent the first reference surface for receiving the first anchor assembly;

the second mounting block includes a slot formed therein adjacent the second reference surface for receiving the shaft of the second anchor assembly; and

the support block includes a slot formed therein adjacent the third reference surface for receiving the shaft of the second anchor assembly.

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25. The apparatus of claim 23, wherein the first mounting block includes a reference bar extending therefrom having an end that is disposed adjacent the indicia and that is aligned with the first tissue presentation surface end of the first anchor assembly mounted to the first mounting block, and wherein an alignment between the reference bar end and the  
10 indicia indicates a separation distance between the first tissue presentation surface end and the bone anchor.

26. An apparatus for mounting a graft to an anchor assembly of a reconstruction system, comprising:

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a base plate;

a first mounting block mounted to the base plate and having a first reference surface;

a second mounting block mounted to the base plate and having a second reference surface against which the anchor assembly is mountable that is adjustably moveable relative to the first reference surface; and

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a tension apparatus mounted to the base plate for applying a tension to a graft connected to the first mounting block, and for positioning the graft to extend adjacent to and past the second mounting block under the tension.

27. The apparatus of claim 26, where the graft is connectable to the first mounting  
25 block by looping the graft around the first reference surface.



28. The apparatus of claim 27, wherein the first mounting block includes a pin extending therefrom on which the first reference surface is disposed.

29. The apparatus of claim 26, further comprising:  
5 a measurement bar that is fixed to one of the first and second mounting blocks and that slides relative to the other one of the first and second mounting blocks as the second reference surface is selectively moved relative to the first reference surface, wherein the measurement bar includes measurement indicia such that an alignment between one of the first and second mounting blocks and the indicia indicates a first separation distance relating  
10 to a separation distance between the first and second reference surfaces;

30. The apparatus of claim 26, wherein the second mounting block is slidably attached to the base plate for the selective moveability of the second reference surface relative to the first reference surface.

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31. A method for assembling a reconstruction system for implementation into a bone tunnel, wherein the reconstruction system includes a first anchor assembly having a first tissue presentation surface and a second anchor assembly having a tissue fixation surface and a second tissue presentation surface, the method comprising:

20 mounting the first anchor assembly against a first reference surface of a first mounting block;

mounting the second anchor assembly against a second reference surface of a second mounting block;

connecting a graft to the first anchor assembly;

connecting the graft to a tension assembly for applying a tension to the graft and for positioning the graft along the tissue fixation surface and the first and second tissue presentation surfaces under the tension;

setting a separation distance between the first and second reference surfaces; and

5       fixating the graft to the fixation surface using a fixation ring after the setting of the separation distance.

32.     The method of claim 31, wherein the setting of the separation distance includes measuring a first length of a portion of the bone tunnel, and setting the separation  
10     distance such that a distance between the second reference surface and an end of first tissue presentation surface is substantially equal to the measured length.

33.     The method of claim 31, wherein the fixation of the graft includes fixing a ring member around the graft and a shaft of the second anchor assembly such that the ring  
15     member exerts a fixation force on the graft toward the shaft to secure the graft to the shaft.

34.     The method of claim 33, wherein the fixation of the graft includes wrapping an elongated member around the graft and the shaft to form the ring member.

20       35.     The method of claim 32, wherein:

a measurement bar extends from one of the first and second mounting blocks and slides relative to the other one of the first and second mounting blocks as the separation distances between the first and second reference surface is set;

the measurement bar includes measurement indicia; and

25       the setting of the separation includes aligning the other one of the first and second mounting blocks to a portion of the indicia corresponding to the measured length.

36. The method of claim 32, wherein the first mounting block is attached to a base plate and the second mounting block is slidably attached to the base plate, and wherein the setting of the separation distance includes sliding the second mounting block relative to the  
5 base plate.

37. The method of claim 35, further comprising:  
measuring a second length of a portion of the bone tunnel,  
setting a second separation distance between the second reference surface and a third  
10 reference surface of a support block; and  
abutting an end of the second tissue presentation surface against the third reference surface.

38. The method of claim 37, wherein the setting of the second separation distance  
15 includes aligning the third reference surface to a portion of the indicia corresponding to the second separation distance.

39. The method of claim 37, wherein the abutting includes adjusting a position of the second tissue presentation surface relative to other portions of the second anchor  
20 assembly.

40. A method for assembling a reconstruction system for implementation into a bone tunnel, wherein the reconstruction system includes an anchor assembly having a tissue presentation surface and a tissue fixation surface, the method comprising:  
25 mounting the anchor assembly against a first reference surface of a first mounting block;

connecting a graft to a second reference surface of a second mounting block;  
connecting the graft to a tension assembly for applying a tension to the graft and for  
positioning the graft along the tissue fixation surface and the tissue presentation surface  
under the tension;

5        setting a separation distance between the first and second reference surfaces; and  
          fixating the graft to the fixation surface using a fixation ring after the setting of the  
separation distance.

41.     The method of claim 40, wherein the setting of the separation distance  
10    includes measuring a length of a portion of the bone tunnel, and setting the separation  
distance such that a distance between the second reference surface and an end of the tissue  
presentation surface is substantially equal to the measured length.

42.     The method of claim 40, wherein the fixation of the graft includes fixing a  
15    ring member around the graft and a shaft of the anchor assembly such that the ring member  
exerts a fixation force on the graft toward the shaft to secure the graft to the shaft.

43.     The method of claim 42, wherein the fixation of the graft includes wrapping  
an elongated member around the graft and the shaft to form the ring member.

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44.     The method of claim 41, wherein:  
          a measurement bar extends from one of the first and second mounting blocks and  
slides relative to the other one of the first and second mounting blocks as the separation  
distances between the first and second reference surface is set;  
25        the measurement bar includes measurement indicia; and

the setting of the separation includes aligning the other one of the first and second mounting blocks to a portion of the indicia corresponding to the measured length.

45. The method of claim 41, wherein the second mounting block is attached to a base plate and the first mounting block is slidably attached to the base plate, and wherein the setting of the separation distance includes sliding the first mounting block relative to the base plate.